

Current state of the European bison (*Bison bonasus* L.) population in the Orlovskoye Polesie National Park and prospects for its development

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Abstract The largest Russian population of European bison (wisent) inhabits the home range in the western part of the country. Its area consists of National Park Orlovskoye Polesie, National Park Ugra, reserve Kaluzhskie Zaseki and some adjacent sites in Tula region. This area has a potential to support wisent population larger than 1000 animals. The paper presents the development of this population and plans for the future.

Key words: Orlovskoye Polesie National Park, European bison, population management

The National Park “Orlovskoye Polesie” has been working on the restoration of European bison to the nature since 1996. As a part of implementation of the Strategy for the Conservation the Species in Russia (2002), specialists from the A. N. Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences, the breeders from the Prioksko-Terrasny and Okskiy nature reserves, and WWF Russia, conducted a full-scale survey of the territory of the national park and adjacent lands. The results of these studies allowed to recognize the territory of the Orlovskoye Polesie as suitable for establishing there a free ranging population of European bison. At the same time, the possibility for the growing population of European bison to leave the national park – to the forest lands of the Kaluga and Bryansk regions were immediately taken into account. Therefore, a Program for the Conservation of the Russian European Bison (1996) was approved with the authorities of these regions.

During the period from 1996 to 2001, 65 individuals were brought to Orlovskoye Polesie from various breeding centers of the world and domestic nurseries. That, for the first time, allowed to collect animals representing the entire world European bison gene pool in one population and initiate the process of species’ restoration in the national park.

The territory of the national park “Orlovskoye Polesie” and the adjacent Bryansk and Kaluga lands have sufficient area of habitats suitable for European bison due to the presence of relatively large forests within the territory of the national park. The area of habitats appropriate for wisents within the Orlovskoye Polesie National Park is 42076 ha (54.12% of its whole area). At the same time, the carrying capacity of this range does not exceed 100 individuals. As expected, the European bison in the first year after the release went outside the national park. Currently, the area inhabited by the E. bison from Orlovskoye Polesie, including the lands of the national park and the adjacent lands of the Bryansk and Kaluga regions, equals to 112076 hectares. Within this area, the density of wisents was 3.5 individuals per 1000 ha in 2019, 3.8 individuals per 1000 ha in 2020, and 4.3 individuals per 1000 ha in 2021 (Orlovskoye Polesie 2020; 2021). Obviously, since the population density is growing and the area accessible for European bison is not limited in any way, it is logical to expect a natural increase of the home range area to maintain optimal density.

To reach the stage of viability, the population size must be at least 1000 individuals, including at least 500 reproductive animals. Sufficient amount of suitable habitats for such a population of European bison can be found only within several adjacent regions of Central Russia (Orel, Bryansk, Kaluga and Tula regions). Currently, this territory is inhabited by European bison, managed by a number of specially protected natural areas: the national Park “Orlovskoye Polesie” in the Oryol region, the reserve “Kaluzhskie Zaseki” and the national Park “Ugra” in the Kaluga region, the state nature reserve of regional significance “Karachevsky” in the Bryansk region. Wisent herd of the Ugra and Kaluzhskiye Zaseki gradually migrate into the adjacent lands of the Tula region. Therefore it is planned to create a specially protected natural area encompassing sites of their regular occurrence.

All these groups of European bison have opportunities for mutual contacts allowing for the exchange of genes. Together, they make up so called Central Russian population. According to the population census from 2020, the number of the Central Russian population was 753 individuals, including 426 individuals managed by the Orlovskoye Polesie National Park. In 2021, more than 800 individuals were registered in the Central Russian population, including 490 individuals in the population of the Orlovskoye Polesie (Orlovskoye Polesie 2020, 2021).

Over 25 years, the Orel population of European bison has grown 7.5 times. It is successfully developing, maintains a positive population dynamic, and has real prospects for further growth. Currently, it is one of the largest in the world and the definitely the largest in Central Russia (Fig. 1).

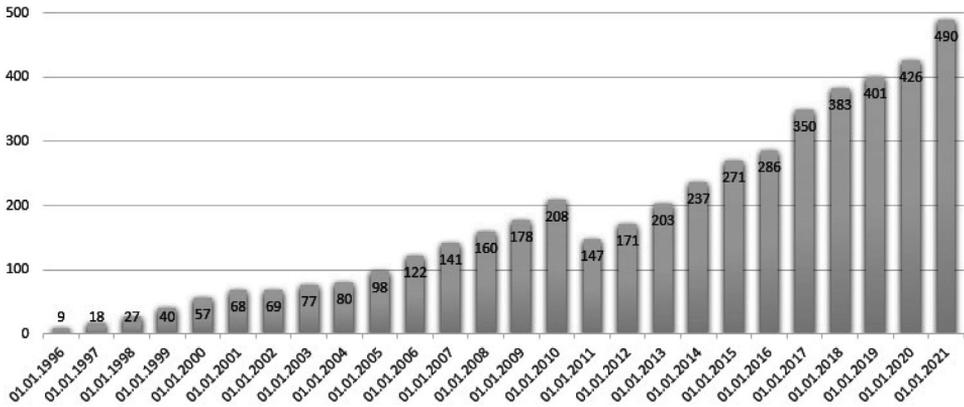


Fig. 1. Dynamics of European bison population growth in the Orlovskoye Polesie National Park

Further work concerning the management of the free ranging European bison population in the Orlovskoye Polesie National Park should include following components:

1. monitoring (collection of data on the spatial distribution, movements, seasonal composition of wisent groups, population parameters (birth rate, mortality, age and sex structure), health status, both using high-tech modern equipment, and by traditional methods (tracking and visual observation);
2. environmental studies (further study on the trends in inhabitation and habitat use by European bison within the territory of the national Park “Orlovskoye Polesie” and the adjacent lands of the Bryansk and Kaluga regions);
3. the continuation of European bison transfers to the territories of other protected areas (positive trends of the wisent population dynamics in the Orlovskoye Polesie National Park allow for the removal of a certain number of individuals for the creation and supplementation of other free ranging European bison groups. Such transfers increase the potentials for the success of the Bison Conservation Strategy in Russia (2021) and contribute to the world wide restoration and conservation of this species in the wild. Since 2014, 41 European bison have been transported from the free population of the Orlovskoye Polesie to other specially protected natural areas. Of these: 24 – to the NP “Ugra”, 14 – to the NP “Smolenskoye Poozerie” and 3 – to the PZ “Bryansk forest”;
4. the formation of the “comfort zone” consisting of habitats suitable for the European bison (in 1999, an ecological network scheme was developed for the territory of the Central part of European Russia, including several pro-

tected core zones – the Bryansk Forest State Park, in the Kaluga Region – the Kaluzhskiye Zaseki State Park and the Ugra National Park, in the Oryol Region-the Orlovskoye Polesie National Park (Prigoryanu 2004). In the Tula region, the reconstruction of the reserve “Tulskiye Zaseki” is at the design stage, which in the future can become another core zone of the existing eco-network. In this case, suitable habitats available for the free-living population of European bison will significantly increase. For the full functioning of this network, it is necessary to revitalize already identified and form additional ecological transition zones (hereinafter

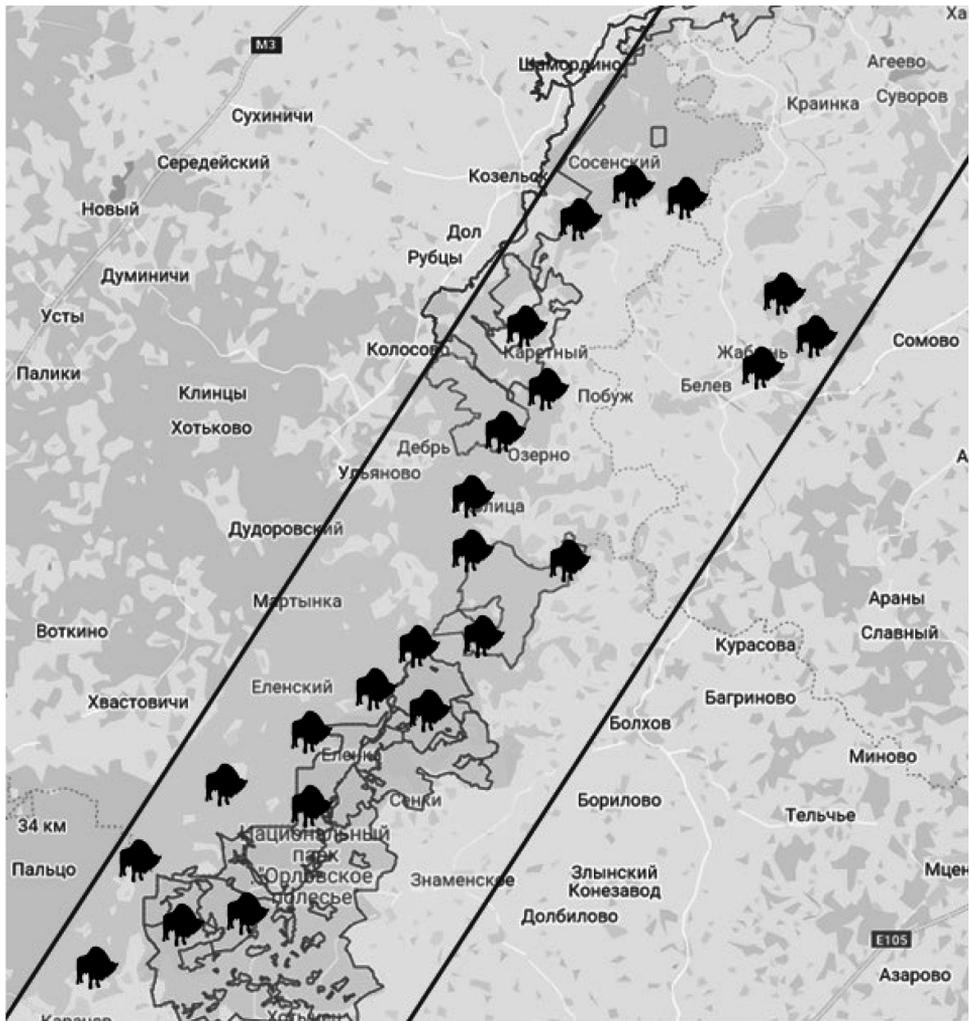


Fig. 2. A scheme of proposed Environmental Corridor in the central part of European Russia

referred to as “corridors”) connecting the “core zones” of the ecological network, allowing for spontaneous migration of wisents (Fig. 2). This would ensure the exchange of genetic material among particular wisent populations and increase of the territory inhabited by the species.

Considering those recommendations it is suggested to elaborate formal documents at the level of the Ministry of Natural Resources of the Russian Federation and the administrations of the Orel, Bryansk, Kaluga, and Tula regions concerning the following aspects:

- a joint work on the formation of ecological “corridors” and “comfort zones” to create safe habitat conditions for European bison;
- prevention of further fragmentation and deterioration of habitats suitable for European bison;
- prevention the expansion of large agricultural holdings in the territory bordering with patches of suitable habitats for European bison.

Those issues were already addressed by the National Park “Orlovskoye Polesie” in a form of proposals to the section of experts (working group) on E. bison under the framework of Ministry of Natural Resources of the Russian Federation.

5. Continuation of genetic and veterinary research.

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Aktualna sytuacja populacji żubra w Parku Narodowym Orlovskoye Polesie i perspektywy jej rozwoju

Streszczenie: Największa populacja żubra w Rosji ma swój areał na zachodzie kraju. Zasięg populacji obejmuje Park Narodowy Orlovskoye Polesie, Park Narodowy Ugra, rezerwat Kaluzhskie Zaseki oraz obszary w pobliżu w regionie Tuły. Zajmowany obszar ma potencjał utrzymania populacji większej niż 1000 osobników. Praca prezentuje rozwój populacji i plany na przyszłość.
